

Achuta N. SHUKLA, Sunil K. SRIVASTAVA* and Kumar AMBRISH:
Arnebia euchroma (Royle) I. M. Johnst. var. *grandis* (Bornm.) Kazmi
 (*Boraginaceae*)—A New Record for India from Ladakh, Jammu & Kashmir

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Summary: *Arnebia euchroma* (Royle) I. M. Johnston var. *grandis* (Bornm.) Kazmi, belonging to the family *Boraginaceae*, so far known from Iran and Pakistan is reported for the first time from Ladakh, Jammu & Kashmir, India. A detailed description, illustrations and range of distribution of the taxon along with specimens examined are provided.

The genus *Arnebia* Forssk. (*Boraginaceae*) is represented by ca. 25 species (Mabberley 2008), distributed from North Africa, Transcaucasus, Syria, Iraq, Iran, Afghanistan and Pakistan (Kazmi 1971). In India, the genus is represented by six species mainly distributed in North-West Himalaya and Punjab Shiwalik. One of the species, *A. euchroma* (Royle) I. M. Johnston, is distributed in Two varieties are recognized in *A. euchroma*: var. *euchroma*, distributed in ... , and var. *grandis* (Bornm.) I. M. Johnst., distributed in ... During the course of identification of the old collections housed in the herbarium of Botanical Survey of India, Dehradun (BSA) and review of relevant literature (Hooker 1883, Stewart 1917, 1972, Johnston 1952, Kachroo et al. 1977, Nasir 1989, Zhu et al. 1995), it revealed that the specimens collected by U. C. Bhattacharyya 71669 and H. J. Chowdhery & B.P. Uniyal 86146 from Ladakh in Jammu & Kashmir were wrongly identified as *Macrotomia euchroma*. On critical and detailed study of the specimens and matching with the protologue and images of the type specimen of the related species procured from GH, the specimen of *Arnebia euchroma* (= *Macrotomia*

euchroma) turns out to be *Arnebia euchroma* var. *grandis* (Bornm.) Kazmi mainly differing with var. *euchroma* in having more pungently hirsute plant, broader cauline leaves with subcordate base and long acuminate apex. The first report of this taxon from Indian territory resulted into a new record for India. With the record of *Arnebia euchroma* var. *grandis* from India, the genus *Arnebia* now represents seven taxa (six species and one variety) from India.

Key to the varieties

- 1a. Plants less pungently hirsute, narrower cauline leaves, truncate or round at base, less acute at apex var. *euchroma*
 1b. Plants more pungently hirsute, broader cauline leaves, subcordate at base, abruptly narrowed into a long acuminate apex
 var. *grandis*

Arnebia euchroma (Royle) I. M. Johnst. var. *grandis* (Bornm.) Kazmi in J. Arn. Arb. 52: 488 (1971) – *Macrotomia grandis* Bornm. in Osterr. Bot. Zeitschr. 47: 289 (1897) – *Arnebia euchroma* (Royle) I. M. Johnst. subsp. *grandis* (Bornm.) Riedl in Osterr. Bot. Zeitschr. 111: 152 (1964); Rechinger, Fl. Iranica 48: 166 (1967).
 [Fig. 1]

Perennial herb, stems erect, more pungently hirsute, 25–30 cm high with dye stained tap root. Stems many, arising from the axils of the leaves, unbranched, pale to brownish purple, fistulous, ± striate, ca. 25 cm long, covered sparsely or densely with white, thin to thick trichomes, ca. 2

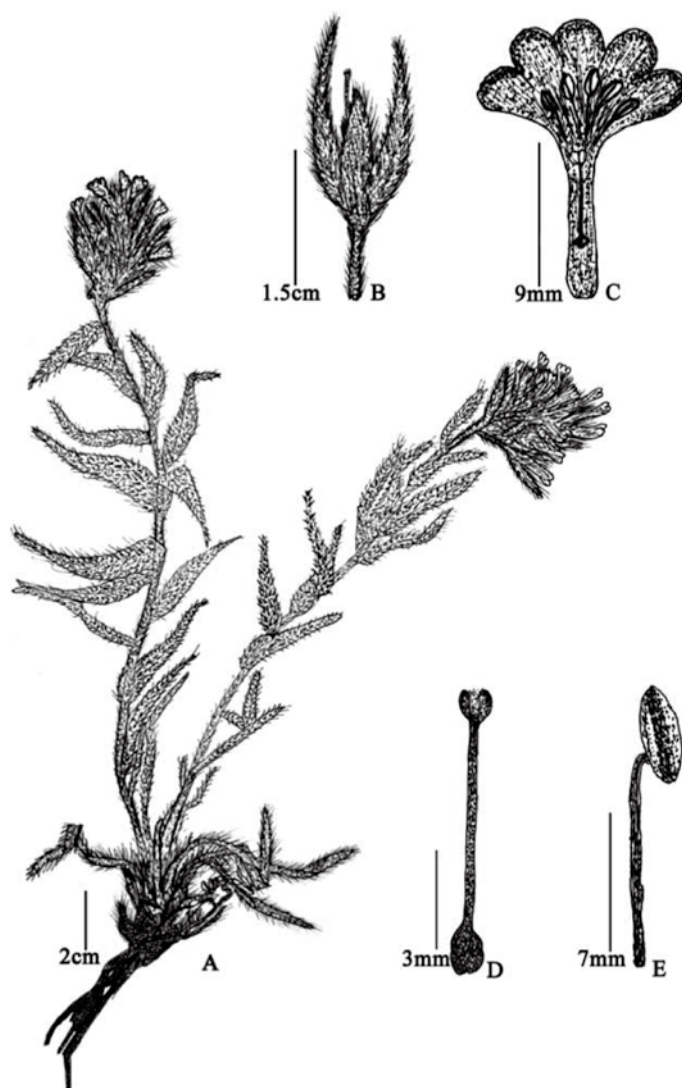


Fig. 1. *Arnebia euchroma* (Royle) I. M. Johnst. var. *grandis* (Bornm.) Kazmi.
A. Habit. B. Flower. C. Corolla. D. Pistil. E. Stamen.

mm long with minute to large tuberculate base. Leaves sessile; basal leaves lanceolate, entire, acute, attenuate towards the broad, ciliate base, $7-8 \times 1-1.5$ cm, sparsely to densely covered on both surfaces with white thick or thin, spreading or subappressed trichomes, with tuberculate base; cauline leaves broader, sessile, lanceolate, $5-8 \times 0.5-0.7$ cm, subcordate at base, abruptly narrowed in the upper half into a long acuminate

tip. Inflorescence terminal, subglobular, tending to become broader than long, 3–4.5 cm in diam., bracteate, bracts short, leaflike. Flowers tubular, brown–purple, ca. 1.5 cm long. Calyx divided to base, lobes densely hairy, linear-lanceolate, acute, ca. 10×1.5 mm. Corolla purple or brown–purple, funnelform, 16–22 mm long, tube 10–15 mm long, limb $5-7 \times 8-16$ mm, divided nearly one-half its length, lobes

ascending, suborbicular to ovate, throat usually glandless. Anthers borne either at the middle or at the summit of the corolla tube. Style reaching the middle of the tube or slightly exserted, usually forked at the apex; stigma 2, compressed, rounded, broader than long. Nutlets grey, dusky, irregularly and coarsely tuberculate, more or less rugose, surface dull, covered with microscopic papillae, broad near the middle, 3–4 mm long, with well developed keel on the venter.

Specimens examined: INDIA. Jammu & Kashmir, Ladakh, Changla, 4800 m, 13 Aug. 1980, U. C. Bhattacharyya 71669 (BSD); on way to Changla, 10 Aug. 1988, H. J. Chowdhery & B. P. Uniyal 86146 (BSD).

Flowering and fruiting: August to September.

Habitat: Growing on dry and rocky slopes at 4200–5000 m alt.

Distribution: India, Jammu & Kashmir (Ladakh), Iran, Pakistan.

Notes: This taxon is closely allied to *Arnebia euchroma* var. *euchroma*, but differs in having more the plant pungently hirsute, broader cauline leaves, obviously subcordate at base, abruptly narrowed in the upper half into a long acuminate apex.

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References

- Zhu G.-L., Reidl H. and Kamelin R. 1995. *Boraginaceae*. In: Wu, Z.-Y. and Raven P. H. (eds.), *Flora of China*. **16**: 329–427. Science Press,

Beijing & Missouri Botanical Garden Press. St. Louis.

- Hooker J. D. and Clarke C. B. 1883. *Boraginaceae*. In: Hooker J. D., *Flora of British India*. **4**: 134–179. L. Reeve & Co., London.

- Johnston I. M. 1952. Studies in the *Boraginaceae*. J. Arn. Arb. **33**: 328.

- Kachroo P., Sapru B. L. and Dhar U. 1977. *Flora of Ladakh – An Ecological and Taxonomical Appraisal*. Singh B. and Singh M. P., Dehradun, Periodical Experts Book Agency. Delhi and International Book Distributors, Dehra Dun.

- Kazmi S. M. A. 1971. A revision of the *Boraginaceae* of West Pakistan and Kashmir. J. Arn. Arb. **52**: 110–136.

- Mabberley D. J. 2008. *The Plant-Book: A Portable Dictionary of Plants, their classification and uses*. Cambridge University Press, Cambridge.

- Nasir Y. J. 1989. *Boraginaceae*. In: Ali S. I. and Nasir Y. J. (eds.), *Flora of Pakistan* **191**: 157.

- Stewart R. R. 1916–1917. *Flora of Ladakh*. Bull. Torrey Bot. Club **43**: 571–600 (1916), **43**: 625–650 (1917). (Indian reprint. Bishen Singh Mahendra Pal Singh. Dehra Dun and M/s Periodical Experts. Delhi, 1973).

- Stewart R. R. 1972. *An Annotated Catalogue of the Vascular Plants of West Pakistan & Kashmir*. 267 pp. Gordon College, Rawalpindi.

インド (ジャンムー・カシミール) に新分布の *Arnebia euchroma* (Royle) I. M. Johnst. var. *grandis* (Bornm.) Kazmi (ムラサキ科) (A. N. Shukla, S. K. Srivastava, K. Ambrish)

これまでイランとパキスタンからのみ知られていた、ムラサキ科の *Arnebia euchroma* (Royle) I. M. Johnst. var. *grandis* (Bornm.) Kazmi をインド・ジャンムー・カシミール州ラダック地方から初めて報告した。併せて、本植物について線画を添えて詳しく記載し、分布域についてコメントした。

(インド・植物調査所ノーザンリージョナルセンター)